Viability throughout storage of potential probiotic strains, when in contact with fruit pulps

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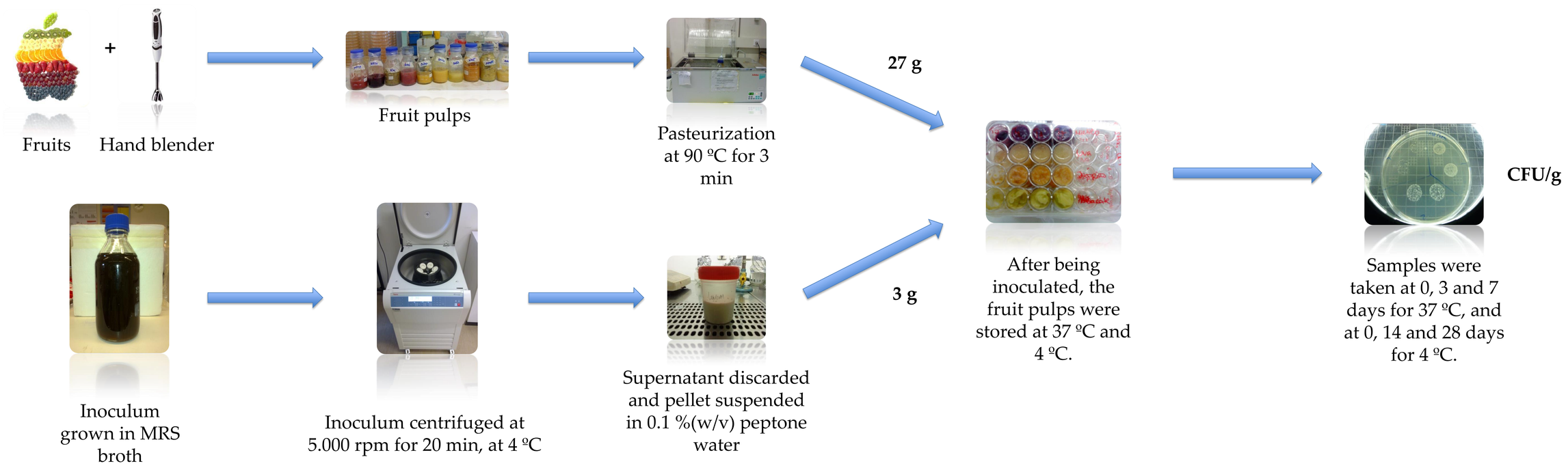
Introduction

Production of functional food products has been, over the past years, a trend in the food industry. Functional foods are foods that, besides the nutritional value, promote beneficial effects in one or more functions of the human organism. The beneficial effects can be promoted by several different components of the food products, like antioxidant compounds, prebiotics, probiotics, among others. Probiotics are "live microorganisms, which when consumed in adequate amounts, confer a health effect on the host". A daily intake of 10^8 colony forming units (CFU) of probiotic bacteria has been suggested for a beneficial effect to be observed. The majority of the food products containing probiotics have been dairy and dried products, since they provide a favourable environment for the maintenance of viability. However, other food products have been studied as vectors for probiotic delivery. Among such products are fruit based products such as juices. In this research work, the viability throughout storage of 6 potential probiotic strains (4 *Leuconostoc* and 2 *Lactobacillus*) isolated from different fruits, when in contact with fruit pulps, was studied.

Materials & Methods



Results & Discussion

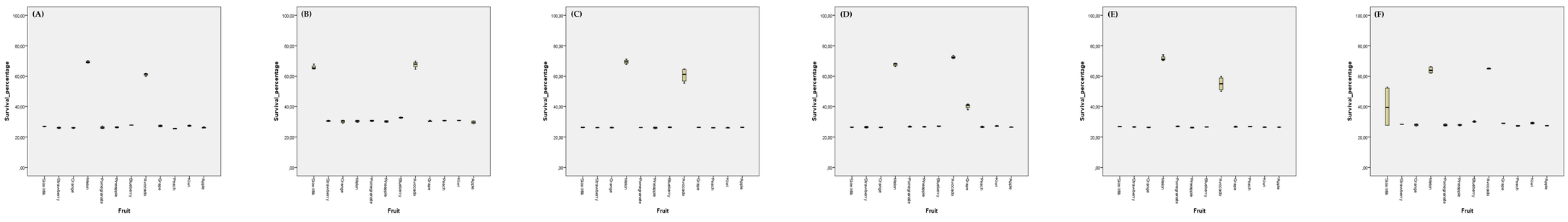


Figure 1. *Leuconostoc mesenteroides* D33 (A), *Leuconostoc mesenteroides* ME42 (B), *Lactobacillus brevis* D20 (C), *Leuconostoc* spp. Mi32D (D), *Lactobacillus brevis* D57 (E) and *Leuconostoc pseudomesenteroides* D63 (F) survival percentage after 7 days storage at 37 ºC.

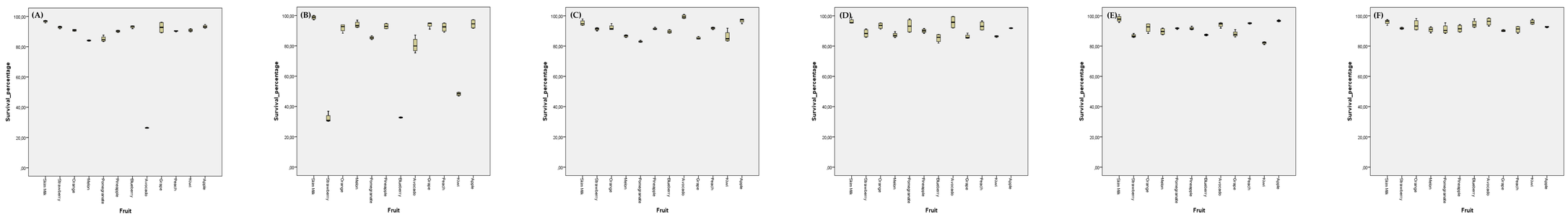


Figure 2. *Leuconostoc mesenteroides* D33 (A), *Leuconostoc mesenteroides* ME42 (B), *Lactobacillus brevis* D20 (C), *Leuconostoc* spp. Mi32D (D), *Lactobacillus brevis* D57 (E) and *Leuconostoc pseudomesenteroides* D63 (F) survival percentage after 28 days storage at 4 ºC.

- After 7 days, at 37 ºC, only avocado and melon (except in one case), were capable of sustaining probiotic viable cell numbers high enough to enable the production of a functional food product.
- After 28 days, at 4 ºC, all potential probiotic strains presented high survival percentages.
- Some fruit pulp/probiotic strain combinations presented survival percentages above 95%.

Conclusion

Storage at 4 ºC is, between the two temperatures tested in this study, the most adequate for maintenance of probiotic strain viability. Fruit pulps, when stored at refrigerated temperature, are capable of sustaining probiotic strain viabilities in the levels needed for the production of functional food products.

Acknowledgements

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